

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (original) A process for preparing an orthopaedic scaffold, said process comprising forming shaped blocks of a bioactive material comprising silicon, treating one or more selected surfaces of said blocks such that they will adhere to a similarly treated surface of a similar block, self-assembly of a scaffold comprising two or more of said blocks under conditions in which the treated surfaces will bind together, and thereafter recovering the assembled structure.
2. (original) A process according to claim 1 wherein the said blocks are square or hexagonal in cross section.
3. (currently amended) A process according to claim 1 ~~or claim 2~~ wherein the blocks will be at least partially porous.
4. (currently amended) A process according to ~~any one of the preceding claims~~ claim 1 wherein the bioactive material comprises bulk crystalline silicon, amorphous silicon, porous silicon, polycrystalline silicon, or a composite of bioactive silicon and another material.
5. (original) A process according to claim 4 wherein the bioactive material is a composite of bioactive silicon and a biocompatible polymer.
6. (original) A process according to claim 5 wherein the composite is obtained by mixing bioactive silicon particles with a polymer in powder or granular form, and heating the resultant mixture so as to fuse it.
7. (original) A process according to claim 6 wherein the mixture is heated in a mold to form a block of a desired shape.
8. (original) A process according to claim 6 wherein the polymer has a melting point of less than 150°C.

9. (currently amended) A process according to ~~any one of claims 5 to 8~~ claim 5 wherein the biocompatible polymer is polycaprolactone.

10. (currently amended) A process according to ~~any one of claims 5 to 9~~ claim 5 wherein the mass ratio of silicon: organic polymer in the composite is from 1:99 to 99:1.

11. (currently amended) A process according to claim 10 wherein the mass ratio of ~~silicon~~ silicon: organic polymer is in the range of from 1:20 to 1:4w/w.

12. (currently amended) A process according to ~~any one of the preceding claims~~ claim 1 wherein the surfaces bind together by forming covalent chemical bonds therebetween.

13. (currently amended) A process according to ~~any one of the preceding claims~~ claim 1 wherein the said one or more surfaces of the blocks are treated so as to increase the density of silanol groups (SiOH) thereon.

14. (original) A process according to claim 13 wherein the said one or more surfaces are exposed to an oxygen-rich plasma, and thereafter mixed with similarly treated blocks in the presence of a coupling agent.

15. (original) A process according to claim 14 wherein the coupling agent is an alkoxysilane.

16. (original) A process according to claim 15 wherein the alkoxysilane is in aqueous solution.

17. (currently amended) A process according to ~~any one of claims 4 to 12~~ claim 4 wherein the said one or more surfaces of the blocks are treated so as to enrich the amount of silicon exposed thereon and ~~therafter~~ thereafter mixed with similarly treated blocks in the presence of a coupling agent.

18. (original) A process according to claim 17 wherein the coupling agent is a polysaccharide.

19. (original) A process according to claim 18 wherein the coupling agent is a starch.

20. (currently amended) A process according to ~~any one of the preceding claims~~ claim 1 wherein the surface of the assembled structure is treated to alter its biological activity.

21. (currently amended) A process according to ~~any one of the preceding claims~~ claim 1 wherein the assembled structure is heated to raise its mechanical strength.

22. (original) An orthopaedic scaffold comprising a plurality of blocks of a bioactive material comprising silicon, adhered together.

23. (original) An orthopaedic scaffold according to claim 22 wherein the bioactive material comprises a composite of silicon and a biocompatible polymer.

24. (currently amended) An orthopaedic scaffold according to claim 22 or claim 23 wherein the blocks are adhered together by means of covalent bonds.

25. (original) A process for preparing solid object, said process comprising forming shaped blocks of a material comprising silicon, treating one or more selected surfaces of said blocks such that they will adhere to a similarly treated surface of a similar block, and self-assembly of a structure comprising two or more of said blocks under conditions in which the treated surfaces will bind together, and thereafter recovering the assembled structure.

26. (original) A process according to claim 23, wherein covalent chemical bonds are formed between the surfaces to bind the blocks together.

27. (original) A process for preparing solid object, said process comprising forming shaped blocks of a material, treating one or more selected surfaces of said blocks such that they will adhere to a similarly treated surface of a similar block, and self- assembly of a structure comprising two or more of said blocks under conditions in which the treated surfaces will form covalent chemical bonds therebetween, and thereafter recovering the assembled structure.

28. (original) A process for preparing an orthopaedic scaffold substantially as hereinbefore described with reference to the Examples.